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DROUGHT LEVEL PREDICTION BASED ON LOG-LINEAR MODEL

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Abstract

Drought prediction is fundamental to the management of drought risks. This paper collects the monthly precipitation data in 1957~2009 from 19 meteorological stations in the Yellow River Basin, and sets up a log-linear model to predict the drought level in the study period using the standardized precipitation index (SPI). Based on the SPI drought classification criterion, the drought level sequences were established, the frequency of drought level conversion was determined, and the dominance and its confidence interval were obtained by the log-linear model. In this way, meteorological drought level in one to two months was predicted. The model verification shows that the expected frequency agrees well with the observed frequency, and the predicted drought level was in line with the measured level. This means our model can accurately forecast the drought level in one to two months, and can be used for early warning of drought in the short term.

Keywords: drought level, log-linear model, standardized precipitation index (SPI)